FA 33/49T101

MESHKOVA, T. S.

Jul 48

USSR/Physics
Astronomy
Planets

"Is There Any Life on the Planets?" T. S. Meshkova, 2 pp

"Nauka i Zhizn'" No 7

Presents physical characteristics of the planets, such as mass, density, temperatures, length of solar year, and presence or absence of atmosphere around them. Decides that life is possible on some planets, especially Mars.

33/49T101

[redacted]

MESHKOVA, T. S.

"The Old and New Methods for Computing Summers," Nauka I Zhizn', No. 6, 1949.

MESHKOVA,

KULIKOV, K.A.; FESENKOV, V.G., akademik, redaktor; MESHKOVA, T.S., redaktor;
MAKUNI, Ye.V. tekhnicheskiy redaktor.

[Movement of the earth's poles] Dvizhenie poliusov zemli. Moskva,
Izd-vo Akademii nauk SSSR, 1956. 79 p. (MLRA 9:5)
(Latitude variation)

KLYUYEV, V.N., MESHKOVA, T.S.

Affinity magnitude of $4,4^1$-dioxydiphenylalkanes to cotton fiber. Report No.1. Izv.vys.ucheb.zav.; tekh.tekst.prom. no.3:113-117 '60.
(MIRA 13:7)

1. Ivanovskiy khimiko-tekhnologicheskiy institut.
(Dyes and dyeing--Cotton)

KULIKOVSKIY, P.G.; MESHKOVA, T.S. [Translator]

Letters from V.IA. Struve to S.S. Uvarov and P.N. Fuss (Published by P.G. Kulikovskii). Ist-astron. issl. no. 6:401-416 '60. (MIRA 14:2)
(Struve, Vasilii IAkovelevich, 1793-1864)

MESHKOVA, T.S.

S.A. Kazakov's catalog of the Moscow zenith zone (from + 50° to + 55°). Trudy GAISH 31:131-243 '62. (MIRA 15:5)
(Stars--Catalogs)

MESHKOVA, V. A.

14-1-404)

Translation from: Referativnyy Zhurnal, Geografiya, 1956, Nr 1, p. 39 (USSR)

AUTHOR: Meshkova, V. A.

TITLE: Geomorphological Regions of the Central Russian Plateau (Geomorfologicheskiye rayony Sredne-Russkoy vozvyshennosti)

ABSTRACT: Bibliographic entry on the author's dissertation for the degree of Candidate of Geographical Science, presented to Voronezh University, (Voronezhsk.un-t) Voronezh, 1956

ASSOCIATION: Voronezh University (Voronezhsk. un-t.)

Card 1/1

PEYZULAYEV, SH.I.; KARABASH, A.G.; KRAUZ, L.S.; KOSTAREVA, F.A.; SMIRNOVA-AVERINA, N.I.; BABINA, F.L.; KONDRAT'YEVA, L.I.; VORONOVA, Ye.F.; MESHKOVA, V.M.

Spectral method for the determination of trace impurities. Zav. lab. 24 no. 6:723-731 '58. (MIRA 11:7)

(Spectrum analysis)

KARABASH, A.G.; PEYZULAYEV, Sh. I.; USACHEVA, V.P.; MOROZOVA, G.G.;
MESHKOVA, V.M.; LOBANOVA, V.L.

Determination of impurities in thorium and its compounds by the combined chemical and spectral method. Zhur.anal.khim. 16 no.2:217-222 Mr-Ap '61. (MIRA 14:5)
(Thorium--Analysis)

MESHKOVA, V.N.

Selection of the method of surgical intervention in sigmoid gangrene in elderly and senile patients. Trudy Inst. im. N.V. Sklif. 9:111-118 '63. (MIRA 18:6)

1. Moskovskiy gorodskoy nauchno-issledovatel'skiy institut skoroy pomoshchi imeni Sklifosovskogo.

LEYKIN, Ye.R.; GUTINA, S.L.; MESHKOVA, V.Ya.

Development of the method of purification of xylose solution prior to hydrogenation. Sbor.trud. NIIGS 11:77-85 '63. (MIRA 16:12)

LEYKIN, Ye.R.; MESHKOVA, V.Ya.

Developing the method for a pH increase in commercial xylitan. (MIRA 18:3)
Sbor.trud.NIIGS 12:185-188 '64.

LEYKIN, Ye.R.; SOBOLEVA, G.D.; MESHKOVA, V.Ya.

Solubility of sorbite and xylitol in water and alcohol. Sbor.trud. NIIGS 12:189-194 '64. (MIRA 18:3)

PANASENKO, G.D.; MESHKOVA, Z.S.

Direction of the action of tangential stresses in the zone of earthquake focuses in the Hindu Kush. Dokl. AN SSSR 155 no.1: 88-91 Mr '64. (MIRA 17:4)

1. Polyarnyy geofizicheskiy institut Kol'skogo filiala im. S.M.Kirova AN SSSR. Predstavleno akademikom D.I.Shcherbakovym.

MAKSIMOVICH, N.A., dotsent; MESHKOVSKAYA, L.A., starshiy nauchnyy sotrudnik.

Case of isolated tuberculosis of the spleen. Probl.tub. no.5:68-69 S-O '53. (MLRA 6:12)

1. Iz patologoanatomicheskogo i tuberkulesnogo otdela Ukrainskogo nauchno-issledovatel'skogo instituta okhrany materinstva i detstva (Kiyev).
(Spleen--Tuberculosis)

SLAVIN, S.V., doktor ekon. nauk; GRANIK, G.I., kand. ekon. nauk; LOGINOV, V.P.; MIKHAYLOV, S.V.; SHAPALIN, B.F., kand. geogr. nauk; AVAKYAN, M.I., nauchnyy sotr.; ZAKHAROV, G.A., nauchnyy sotr.; KAMENITSER, L.S., nauchnyy sotr.; TITOVA, N.I., nauchnyy sotr.; TYURDENEV, A.P., nauchnyy sotr.; CHUGUNOV, B.I., starshiy nauchnyy sotr.; KOGAN, I.L.; MESHKOVSKAYA, L.V., starshiy inzh.; LUKIN, I.I.; FAYERSHTEYN, R.I.; Prinimali uchastiye: Agranat, G.A., kand. geogr. nauk, red.; PUZANOVA, V.F., kand. geogr. nauk, red.; KUPRIYANOV, A.B., nauchnyy sotr., red.; SOBOLEV, Yu.A., red. izd-va; TIKHOMIROVA, S.G., tekhn. red.

[Problems in developing the productive forces of Magadan Province] Problemy razvitiia proizvoditel'nykh sil Magadanskoi oblasti. Moskva, Izd-vo Akad. nauk SSSR, 1961. 301 p. (MIRA 15:1)

1. Akademiya nauk SSSR. Sovet po izucheniyu proizvoditel'nykh sil. 2. Glavnyye inzhenera proyekta "Dal'stroyproyekt" (for Kogan, Fayershteyn). 3. Institut ekonomiki Akademii nauk SSSR (for Chugunov). 4. Energoupravleniye Magadanskogo Soveta narodnogo khozyaystva (for Meshkovskaya). 5. Nachal'nik Oblastnogo otdela po delam stroitel'stva i arkhitektury Magadanskoy oblasti (for Lukin).

(Magadan Province—Industries) (Magadan Province—Economic policy)

ABAKUMOV, Mikhail Mitrofanovich; DAL'SKAYA, A., kand. tekhn. nauk,
nauchnyy red.; [redacted]ed.; SHLYK, M., tekhn.red.

[Automation of machine tools] Avtomatizatsiia metallorezhushchikh
stankov. Moskva, Mosk. rabochii, 1963. 214 p. (MIRA 16:8)
(Machine tools) (Automatic control)

BRZHEZINSKIY, Leopol'd Vikent'yevich; MESHKOVSKAYA, M., red.;
KUZNETSOVA, A., tekhn. red.

[Suggestions facilitate work] Predlozheniia oblegchaiut
trud. Moskva, Mosk. rabochii, 1962. 39 p. (MIRA 16:8)

1. Slesar'-naladzhik Zagorskoy trikotazhnoy fabriki (for
Brzhezinskiy).
(Zagorsk--Knitted goods industry--Technological innovations)

MESHKOVSKAYA, V.V.; SMIRNOV, V.Ya.; ANTIPOV, M.M.; TKHILADZE, G.R.

Mobile mechanized machine for preparing paint components. Rats. i izobr. predl.v stroi.no.123:6-9 '55. (MIRA 9:7)
(Paint machinery)

MESHKOVSKIY, A. G.

Mbr., Inst. Physical Problems, Dept. Physico-Math. Sci., Acad. Sci., -1947-49-. "Superconductivity," Fizika v Shkole, No. 4, 1947; "The Structure of Superconductors in the Intermediate State: II, "Journal Phys., 11, No. 1, 1947; "Surface Effect of Superconductors in the Intermediate State," Zhur. Eksper. i Teoret. Fiz., 17, No. 10, 1947; "Study of the Structure of a Sphere Manufactured from a Superconductor during its Intermediate Condition," ibid., 19, No. 1, 1949. Dept. Physico-Math. Sci. Prize, 1947, publ.

MESHKOVSKIY, A. G. Cand. Physicomath Sci.

Dissertation: "Structure of Superconductors in the Transitional State." Inst. of Physical Problems, Acad. Sci. USSR, 21 Nov. 1947.

SO: _Vechernyaya Moskva,_ Nov. 1947 (Project #17836)

MESHKOVSKY, A.

*The Structure of the Supraconductors in the Intermediate State.—II. A. Meshkovsky and A. Shalnikov (J. Physics (U.S.S.R.), 1947, 11, (1), 1-15).—[In English]. Presented to a session of the Physical Mathematical Department of the Academy of Sciences of the U.S.S.R., October 1946. Single-crystal tin spheres, split equatorially by a space of very small dimensions, were obtained in the intermediate state by application of a homogeneous magnetic field at right angles to the plane of the slit at 2·5°–3° K. The distribution of the field inside the equatorial slit was measured by means of very small movable bismuth probes, and was found to be characteristically inhomogeneous, ranging from zero to H_c (critical field strength). The apparatus is described and discussed. The existence of supraconducting and normal regions in the intermediate state was thus proved. The distribution of the regions was not const. from experiment to experiment, but depended on various factors related to the precise conduct of the experiment. The splitting into supraconducting and normal layers thus does not possess the properties of the equilibrium state required by theory. Results more in accord with theory are obtained when the intermediate state is induced by lowering the temp. at const. external field; less regular distribution patterns are obtained by increasing the external field at a const. temp. The effect of varying the equatorial slit width was examined, and the results discussed from the point of view of assessing the effect of the presence of a slit on the phenomena recorded.—G. V. R.

Inst. for Physical Problems, Acad. Sci. USSR
Presented 1946.

Surface phenomena in superconductors in the transition state. A. Meshkovskii and A. Shal'nikov. *Zhur. Eksptl. Teoret. Fiz.* 17, 851-61(1947).—The distributions of the magnetic field H_s on the surface of a 30-mm.-diam. single-crystal sphere of purest Sn, and on a sphere of polycryst. Sn were detd. by means of a Bi-ribbon microexplorator, as a function of the external field H. With a fixed explorator, the usual const.-H_s portion is found on the equator of the sphere, corresponding to the crit. field H_c, but the pole and the 30th parallel show sharp deviations from the curves corresponding to a homogeneous state. By the pole curve, the superconducting state is preserved over almost 1/3 of the transition-state range; persistence of superconducting regions is also shown by the curve of the 30th parallel. With the explorator moved along the surface of the monocryst. Sn sphere, the family of distribution curves of H_s at the const. temp. of 2.07°K. and at decreasing H, from 101.5 to 0 oersted, corresponding to fractions x_n of the normal phase from 1 to zero, shows early deviations from the behavior predicted on the common assumption that the superconductive and the normal phase do not reach the surface but become lost as a result of branching. These deviations become noticeable at $x_n = 0.94$, and increase with further increasing x_n, i.e. with decreasing H; at $x_n = 0.13$, $H = 72.5$, the width of superconducting areas on the surface attains several mm. At $H = 68$ and 62 oersteds, where, theoretically, $x_n = 0$, there still remain inclusions of the normal phase, the persistence of which can be described as a superconductive "undercooling" effect. Sharp nonhomogeneity of H_s in the transition is shown also by the family of distribution curves taken at const. $H = 100$ oersteds, and temps. varying from 2.72°K. ($x_n = 0.22$) down to 2.32°K. ($x_n = 0$). These curves show the same "undercooling" phenomenon. The conclusion that the superconductive phase heterogeneity does reach the surface is consistent only with the assumption of a nonequil. superconductive transition, or that the normal phase at the surface is "undercooled." These conclusions hold at a sufficient distance (~0.5°) from the crit. temp. T_c, and may have to be modified at as close as 0.01-0.02° below T_c, where the depth of penetration is of the order of 10^{-4} cm., i.e. about 10 times as great as at lower temps. N. Thon

Inst. Physical Problems, AS USSR

MESHKOVSKIY, A.

Meshkovskiy, A. - "Varitrons", (On the work of A. I. Alikhanov and A. I. Alikhanyan), Znaniye -- sila, 1949, No. 3, p. 1-5 (Continuation to follow).

SO: U-4110, 17 July 53, (Letopis 'Zhurnal 'nykh Statey, No. 19, 1949).

MESHKOVSKIY, A.

Meshkovskiy, A. - "Varitrons", (On the work of A. I. Alikhanov and A. I. Alikhanyan), Illustrated by S. Kaplan, Znaniye--sila, 1949, No. 4, p. 20-25, with portrait, (Conclusion; beginning: No. 3).

SO: U-4631, 16 Sept. 53, (Letopis 'nykh Statey, No. 24, 1949).

MESHKOVSKIY, A.

35181. Prevrashchenie Elementov. Ill. S. Kaplan. Znanie -- Sila, 1949, No. 10, s. 29-33.---Okonchanie. Nachalo: No. 9

SO: Letopis' Zhurnal'nykh Statey, Vol. 48, Moskva, 1949

PA 30/49T93

USSR/Physics
Superconductors
Magnetic Fields

Jan 49

"Study of the Structure of a Sphere Manufactured From a Superconductor During Its Intermediate Condition," A. Meshkovskiy, Phys Problems Inst, Acad Sci USSR, 9 pp

"Zhur Eksper i Teoret Fiz" Vol XIX, No 1

Investigates structure of intermediate condition zones of a tin sphere by measuring the field at various points between two hemispheres using a very small movable bismuth field measurer. Obtains two-dimensional pictures of zone distribution along equatorial section of sphere during

30/49T93

USSR/Physics (Contd)

Jan 49

transitions of specimen from superconductor phase to normal and vice versa. Submitted 19 Jul 48.

30/49T93

MESHKOVSKIY, A.

CA

Structure of a superconductor in the transition state. A. Meshkovskii (Acad. Sci. U.S.S.R.). *Zhur. Eksptl. Teoret. Fiz.* 19, 54-62(1949); cf. C.A. 44, 2809g.—Two-dimensional maps of the normal (N) and the superconducting (S) areas in a single-crystal sphere of 99.99% pure Sn were obtained by evaluation of explorations made by the detn. of the elec. resistance of a fine Bi wire, moved in 2 directions along a series of chords of the equatorial section in the slit between 2 hemispheres of 19.7 mm. radius, distant by 0.2 mm. Explorations at 4 K in a field of 70 oersteds, with the S → N transition brought about at const. temp. through increase of the magnetic field, or at 2.85°K. and 81 oersteds, with the N → S transition produced by lowering the temp. at const. magnetic field, yielded substantially the same distribution picture, namely an essentially irregular distribution of areas of the N phase over the equatorial section, but with a distinct tendency to radial arrangement along the periphery. On the basis of these results, the whole of the equatorial region of a continuous sphere would be occupied by a belt of the N phase growing in radially directed layers oriented along meridian sections, spreading north and south of the equatorial plane so as to hit the surface of the 2 hemispheres. Nearer the center of the sphere, the N areas seem to have the shape of isolated fibers and bent plates. The proportions of the N phase, read from the exptl. maps, are, however, much greater than the values required by the conservation of magnetic flux. The root of the discrepancy is that areas appearing to be pure N are actually intimately mixed with S which forms numerous inclusions within the N phase. N. Thon

MESHKOVSKIY, A. G.

2m

USSR.

Ionization spectrum for the rigid component of cosmic rays at sea level. A. G. Meshkovskii and V. A. Shebanov. *Doklady Akad. Nauk. S.S.S.R.* 82, 233-6(1952).—The ionization spectrum of the rigid component of cosmic radiation was detd. at sea level by means of a scintillation counter. J. Rovtar Leach

MESHKOVSKIY, A.G. (Moscow).

Superconductivity. Fiz.v shkole 7 no.4:3-14 '53. (MLRA 6:11)
(Electric conductivity)

MASHKOVSKIY, A.G., PLIGIN, Y.S., [illegible], Y.Y., [illegible], V.A.

[illegible] ivo-[illegible]
[illegible] on [illegible] (11 [illegible])

[illegible] Acad[illegible]
[illegible]

Geneva 11-2[illegible] June [illegible]
In French [illegible]

MESHKOVSKIY, A.G.

3

2

3897
IONIZATION SPECTRUM OF THE COSMIC RAY SOFT COMPONENT AT SEA LEVEL. A. G. Meshkovskii and L. I. Sokolov. Soviet Phys. JETP 3, 6[illegible] [illegible](1956) Dec.

A new method for the investigation [illegible] of cosmic ray particles is worked out. [illegible] are taken for particles with penetration in the intervals 2 to 3, 3 to 5, 5 to 9, and 9 to 16 cm of lead. Conclusions are reached about the distribution of the proton component [illegible]

C-7

Category : USSR/Nuclear Physics - Cosmic rays

Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 645

Author : Meshkovskiy, A.G., Sokolov, L.I.
Title : Spectra of Ionization of Soft Component of Cosmic Radiation at Sea Level

Orig Pub : Zh. eksperim. i teor. fiziki, 1956, 30, No 5, 840-849

Abstract : A new procedure was developed for the investigation of spectra of ionization of cosmic ray particles. Particle spectra were plotted at interval of 2 -- 3, 3 -- 5, 5 -- 9, and 9 -- 15 cm of lead. Conclusions are drawn concerning the makeup of the proton component at sea level in these range intervals.

Ca : 1/1

~~MESHKHOVSKIY, A. G.~~
MESHKOVSKIY, A.G.

CARD 1 / 2
PA - 1765

SUBJECT USSR / PHYSICS
AUTHOR MEŠKOVSKIJ,A.G., PLIGIN,JU.S., ŠALAMOV,JA.JA., SEBANOV,V.A.
TITLE The Creation of Positive Pions by 660-MeV-Protons on Hydrogen.
PERIODICAL Žurn.eksp.i teor.fis,31,fasc.4,560-564 (1956)
Issued: 1 / 1957

On the synchrotron of the Institute for Nuclear Problems of the Academy of Science in the USSR the authors investigated the energy spectra of the pions created by the reactions $p + p \rightarrow \pi^+ + d$ and $p + p \rightarrow \pi^+ + p + n$ (energy of the inciding protons 660 MeV) at angles of observation of 29, 46, and 65° towards the bundle. The two reactions were not examined separately. For the registration of pions and for the determination of their energy the method of magnetic analysis was employed. The scheme of the test order is illustrated in form of a drawing. The efficacy of the creation of pions on hydrogen was determined from the difference paraffin-carbon. A paraffin parallelepiped served as a target. The necessary control tests and corrections are discussed.

The results obtained are illustrated in form of a diagram (ordinate-production cross section of mesons $d^2\sigma/d\Omega\, dE$ in $cm^2\, sterad^{-1}$ MeV per 1 nucleon, abscissa - energy of mesons in MeV). Further diagrams illustrate the meson spectra converted to the center of mass system of the two colliding particles.

Discussion of results: The production cross section $d\sigma/d\Omega$ of the two aforementioned reactions, which was converted into the center of mass system, remains constant for the three investigated angles within the limits of measuring

Zurn.eksp.i teor.fis,31,fasc.4,560-564 (1956) CARD 2 / 2 PA - 1765

errors, and the average value of this cross section amounts to $1,05.10^{-27}$ cm^2 $sterad^{-1}$. If the angular distribution of the mesons created on the occasion of the process $p + p \rightarrow \pi^+$ (?) is nearly isotropic in the center of mass, the total cross section of the production of charged pions by 660 MeV protons by protons amounts to $\sigma(pp \rightarrow \pi^+) = 13,2.10^{-27}$ cm^{-2}. This value can also be computed by the subtraction of the production cross section $\sigma(pp \rightarrow \pi^0)=(3,6\pm0,3).10^{-27}$ cm^2 from the cross section of all nonelastic processes $\sigma_{pp}=(16,7\pm1,2).10^{-27}$ cm^2 occurring at this energy. Agreement between the values obtained by different means and the observed independence of the differential cross section as regards the angle make it appear most probable that the process $p + p \rightarrow \pi^+$ is nearly isotropic in the center of mass system.

The contribution made by the reaction $p + p \rightarrow \pi^+ + d$ towards the total cross section $p + p \rightarrow \pi^+$ can be determined by comparison of the results found here with the data obtained by MESCERJAKOV and NEGANOV, Dokl.Akad.Nauk,100, 677 (1955). At angles of observation of 29° and 46° the share of the mesons produced by the reaction $p + p \rightarrow d + \pi^+$ amounts to $23,6 \pm 2,6\%$ and $10,8 \pm 1,5\%$ respectively of all mesons produced at the corresponding angles by the process $p + p \rightarrow \pi^+$. The maxima of the spectra of the reaction $p + p \rightarrow \pi^+ + p + n$ are approximately 100 to 120 MeV.

INSTITUTION:

MESHKOVSKIY, A.G.

537.591.3

4570 INVESTIGATION OF THE IONIZATION SPECTRA OF COSMIC-RAY PARTICLES AT AN ALTITUDE OF 3250 m ABOVE SEA-LEVEL. A.G. Meshkovskii and L.I. Sokolov. Zh. eksper. teor. Fiz., Vol. 31, No. 5(11), 753-5 (1956). In Russian.

The technique described in an earlier paper (Abstr. 8308 1956) was employed to investigate the ionization spectrum in various particle ranges of the hard and soft cosmic-ray components at an altitude of 3250 m above sea-level. The proton spectrum in the 0.36-1.0 BeV/c interval has been obtained.

A.

. ~~MESHKOVSKIY, A.G.~~ MESHKOVSKIY, A.G

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1879
AUTHOR MEŠKOVSKIJ,A.G., PLIGIN,JU.S., ŠALAMOV,JA.JA., ŠEBANOV,V.A.
TITLE The Production of Positive Pions by 660-MeV-protons on Nuclei of Various Elements.
PERIODICAL Žurn.eksp.i teor.fis,31,fasc.6, 987-992 (1956)
Issued: 1 / 1957

Experimental methods: The present work was carried out on the exterior proton bundle of the synchrocyclotron of the Institute for Nuclear Problems of the Academy of Science in the USSR. The charged pions were registered by the method of magnetic analysis. All measurements were carried out at an angle of observation of 45° with respect to the bundle of the 660 MeV protons. Targets of Li, Be, C, Al, Cu, Ag and Pb were used. The lithium target consisted of a massive plate of 1 cm thickness, and the targets of the other elements consisted of several plates. In connection with the experiments carried out with silver and lead the yield of positive pions was measured only at meson energy. In the case of the remaining elements the differential spectra of the positive pions created in the energy interval of from 70 to 320 MeV was recorded.

Measuring results: are shown in form of a table. The yield of positive mesons on Ag and Pb was measured at a meson energy of 158 ± 5 MeV. The values of $d^2\sigma/d\Omega\, dE$ measured for a nucleus amounted for silver to $(7{,}90\pm1{,}33).10^{-29}\mathrm{cm}^2$ sterad^{-1} MeV^{-1} and for Pb $(7{,}62\pm1{,}43).10^{-29}$ cm^2 sterad^{-1} MeV^{-1}. The spectra constructed on the basis of the data obtained are illustrated in form of a diagram, and a further diagram shows the results of the integration of the spectra. In the case of this integration it was assumed that these spectra are cut off at a pion energy of about 390 MeV.

Discussion of results: The spectra obtained here are very similar, particularly if all spectra are reduced to the same measure. The curve extrapolated from the experimental points is extrapolated into the domain of high energies in good agreement with the maximum pion energy of 390 MeV. The cross section of the production of positive pions by 660 MeV protons at the angle of emission of 45° attains its maximum in the case of the here investigated elements within the energy range of about 140 MeV. At the same energy in the laboratory system and with the same experimental conditions prevailing, the maximum of the production of positive pions is observed in connection with the reaction $p + p \rightarrow \pi^{+} + p + n$. At a proton energy of 660 MeV the dependence of the yield of positive pions on atomic weight is essentially of the same character as in the case of lower proton energies (240 - 380 MeV). In the case of the elements from Li to Al the pions are produced on the surface nucleons of the nucleus, and with a further increase of atomic weight the absorption of the protons and the creation of charged pions apparently increases in the nuclear matter.

INSTITUTION:

MESHKOVSKIY, A.G., PLIGIN, Yu.S, SHALAMOV, Ya.YA., SHER'NOV,V.A.

"On the generation of Positive π Mesons by 660 MeV Protons on Hydrogen," paper presented at CERN Symposium, 1956, appearing in Nuclear Instruments, No. 1, pp. 21-30, 1957

MESHKOVSKIY, A. G.

12832

PRODUCTION OF POSITIVE π-MESONS IN HYDROGEN BY 600 Mev PROTONS [illegible] Meshk[illegible] S. P[illegible] Ia. Ia. Shala[illegible] [illegible] P 4, 404-8(1957) Apr

With observation angles of 29° and 46° relative to a proton beam there were obtained energy spectra for the production of charged π mesons in the process $p + p \rightarrow \pi^+$. Differential cross sections were measured for the angles of 29°, 46°, and 65° in the laboratory system. (auth)

MESHKOVSKIY, A. G.

Distr: 4E3d

2992

THE IONIZATION SPECTRUM OF COSMIC RAYS 3250 m ABOVE SEA LEVEL. A. G. Meshkovskii and L. I. Sokolov. Soviet Phys. JETP 4, 629-32(1957) June.

Using a previously described method, the ionization spectra produced by the soft and hard components of cosmic rays of various ranges at 3250 m above sea level were measured. The proton momentum spectrum was obtained in the interval 0.36 to 1.0 bev/c. (auth)

4

1RML

1

RML

Distr: 4E3d 4E2c

1/0

4344

4 KML

PRODUCTION OF POSITIVE π-MESONS IN VARIOUS NUCLEI BY 660 Mev PROTONS, A. G. Meshkovskii, Iu. S. Pligin, Ia. Ia. Shalamov and V. A. Shebanov. 2

Soviet Phys JETP 4, 842-3, 1957 July

The energy spectrum of π^+ mesons produced at 45° to the incident beam by 660 Mev protons incident on Li, Be, C, Al, and Cu was measured. The cross section dσ/dΩ for π^+ formation in these elements is calculated, and conclusions drawn from the fact that all the spectra are similar. The differential cross section $d^2\sigma/d\Omega dE$ for production of π^+ mesons was measured at 158 Mev in Ag and Pb. Conclusions are drawn about the dependence of the π^+ meson production cross section on atomic weight for elements between Li and Pb. For elements between Li and Al the [illegible] considerably fewer π^+ mesons than indicated by this formula are produced in elements after Al.

56-6-9/56
[redacted]

AUTHOR MESHKOVSKIY, A.G., PLIGIN, Y. [illegible], SHALAMOV, YA.YA., SHEBANOV, V.A.

TITLE Creation of π-Mesons on Zero Isotopic Spin Particles.
(Obrazovaniye π-mezonov na yadrakh s izotopicheskim spinom nol' Russian)

PERIODICAL Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol 32, Nr 6, pp 1328-1334 (U.S.S.R.)

ABSTRACT For an angle of observation of 45° the present paper determines the energy spectra and the differential production cross sections of positive and negative pions on deuterium as well as the production cross sections of negative pions on carbon. In addition to the results obtained by Poroshkin and Tyapkin the necessary data for the comparison of experimental results with the relation $\sigma^{+} + \sigma^{-} = 2\sigma^{0}$ was in this way obtained. Here σ^{+}, σ^{-} and σ^{0} denote the total or differential cross sections of the production of positive, negative, and neutral mesons respectively. Measurements were carried out on the exterior proton bundle of the synchrocyclotron of the United Institute for Nuclear Research. The measuring method and the apparatus have already been described in some of the author's previous works. Results obtained by measuring the energy spectra of positive and negative mesons which were produced by 660 MeV protons on deuteriums and carbon at an angle of observation of 45°, are shown together in a table. A further table contains the differential cross sections of the production of positive and negative mesons. The he-

Card 1/2

56-6-9/56

Creation of π-Mesons on Zero Isotopic Spin Particles [redacted]

re obtained ratios of the yields of positive and negative mesons agree well for deuterium and carbon with the results obtained by other authors.

Discussing of results. The angular distribution of the neutral pions produced by 660 MeV protons on deuterons is isotropic in the center of mass system of the two colliding nucleons. The relation $d\sigma^{+}+d\sigma^{-}=2d\sigma^{0}$ is satisfied within the error limits for deuterium and carbon. However, the data concerning the production of nuclei with an isotopic spin that is different from zero, which were obtained by other experiments, in reality do not lead to the equation $d\sigma^{+}+d\sigma^{-}=2d\sigma^{0}$. This may be shown by the example of Li^{7} and Be^{9} The spectra of the positive and negative mesons produced on the occasion of (p-d)-collisions at high energies differ noticeably among one another.

(2 illustrations and 2 tables)

ASSOCIATION	Not Given.
PRESENTED BY	
SUBMITTED	6.2.1957
AVAILABLE	Library of Congress.

Card 2/2

MESHKOVSKIY, A S

56-2-39/47

AUTHOR MESHKOVSKIY, A.S., SOKOLOV, L.I.

TITLE On the Proton Component of Cosmic Radiation at Sea Level (O protonnoy komponente kosmicheskogo izlucheniya na urovne morya. Russian)

PERIODICAL Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol 33, Nr 2 (8), pp 542 - - 544 (U.S.S.R.)

ABSTRACT The proton component in the low-energy part of cosmic radiation was measured at sea level in the course of 2458 hours by an earlier described method (Zhurnal Eksperim. i Teoret. Fiziki, 1956, Vol 3o, p 84o). Result:

1.)

Range of impulses in BeV/C	0,31-0,38	0,38-0,44	0,44-0,48	0,48-0,55
intensity in $cm^{-2}sec^{-1}$steradian^{-1} $(MeV/e)^{-1}.10^{-8}$	11,5±1,6	14,5± 1,8	17,8± 1,6	18,4± 1,5

2.) The integral intensity of the vertical proton current within the range 0,37 -1,04 BeV/C at sea level amounts to (1,12± 0,03) . . 10^{-4} $cm^{-2}sec^{-1}$steradian^{-1}. From the known value for 325o m height above sea level and the value for 0 m the average absorp-

Card 1/2

56-2499/47

On the Proton Component of Cosmic Radiation at Sea Level

tion length can be determined as $L = 143,5 \pm 6,1$ g/cm^2.

3.) The total intensity of the vertical proton current at the sea level was determined as $(1,38 \pm 0,05) \cdot 10^{-4}$ cm^{-2}sec^{-1}steradian.

(With 1 table, 1 illustration, 7 Slavic references).

ASSOCIATION	Not given
PRESENTED BY	
SUBMITTED	21.5.1957
AVAILABLE	Library of Congress

Card 2/2

MESHKOVSKIY A.G.

AUTHORS: Meshkovskiy, A.G., Shalamov, Ya. Ya., Shebanov, V.A., 56-3-8/59

TITLE: The Production of Negative π-Mesons by the Bombardment of Various Nuclei with 660 MeV Protons. (Obrazovaniye otritsatel'nykh π-mezonov protonami s energiyey 660 MeV na yadrakh razlichnykh elementov)

PERIODICAL: Zhurnal Eksperim. i Teoret.Fiziki, 1957, Vol. 33, Nr 3, pp.602-605 (USSR)

ABSTRACT: For an angle of observation of 45° with respect to the proton beam of 660 MeV the meson-production cross sections $d\sigma^-/d\Omega$ for the following elements were determined.

Element	$d\sigma^-/d\Omega \cdot 10^{27}$
Li	0,93 ± 0,14
Be	1,00 ± 0,15
C	1,00 ± 0,13
Al	1,64 ± 0,26
Cu	2,82 ± 0,43

For Ag and Pb the π-meson yield was measured only at a meson energy of 157 ± 5 MeV. Herefrom $d\sigma^-/d\Omega$ for Ag can be determined at (2,87 ± 0,88) mb/steradian for Pb with (4,18 ± 1,16) mb/steradian. There are 2 figures and 4 Slavic references.

Dub

MESHKOVSKIY, A.G., Doc Phys-Math Sci--(diss) "Study of the origin of ~~lambda~~ pi-mesons in proton-nucleon [illegible] [illegible], 195[illegible]. [illegible] (Acad Sci USSR), (KL,2-[illegible],106)

-1

SOV-120-58-1-5/43

AUTHORS: Blinov, G.A., Lomanov, M.F., Meshkovskiy, A.G., Shalamov, Ya.Ya. and Shebanov, V.A.

TITLE: A Large Freon Bubble Chamber (Bol'shaya puzyr'kovaya freonovaya kamera)

PERIODICAL: Pribory i Tekhnika Eksperimenta, 1958, Nr 1, 2 plates and pp 35-38 (USSR)

ABSTRACT: The working volume of the chamber described in the present paper is 17 litres and it works at room temperature at a pressure of 38 atm. A mixture of freon-12-freon-13, having a density of about 1.2 is used. The maximum path of particles in this chamber is 0.7 of the mean path between nuclear interactions. A diagram of the chamber is shown in Fig.1. The main body of the chamber is made of steel and the windows are covered by plexiglass plates, 9 cm thick and attached to the body of the chamber by steel flanges. A description is given of a device giving good pressure control. The chamber was used in the beam of the synchrocyclotron of the United Institute for Nuclear Studies. The beam employed was either the proton or the neutron beam, the maximum energy being 680 MeV. Fig.3 (facing p.34) shows a photograph of particles scattered from a paraffin target irradiated with 670 MeV protons. The following persons are thanked for their inter-

SOV-120-58-1-5/43

A Large Freon Bubble Chamber.

est and collaboration: A. I. Alikhanov, V. A. Beketov, Yu. I. Makarov, M. G. Polikarpov, V. A. Shchegolev, V. P. Rumyantseva and Ye. V. Kuznetsov. There are 3 figures, 1 table and 8 references, of which 5 are English and 3 Soviet.

SUBMITTED: July 4, 1957.

1. Bubble chambers--Design 2. Bubble chambers--Materials
3. Methyl halides--Applications 4. Particles--Detection

Card 2/2

SOV/56-34-6-8/51

AUTHORS: Meshkovskiy, A. G., Shalamov, Ya. Ya., Shebanov, V. A.

TITLE: The Energy Spectra and the Angular Distribution of the Positive Pions Produced by 660 MeV Protons on Carbon (Energeticheskiye spektry i uglovoye raspredeleniye π^+-mezonov, obrazovannykh na uglerode protonami s energiyey 660 MeV)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol 34, Nr 6, pp 1426-1433 (USSR)

ABSTRACT: This paper investigates the energy spectra and the absolute yields of the positive pions produced by 660 MeV protons on carbon for the angles 19°30', 29°, 38°, 56°, and 65° in the laboratory system. All the measurements were carried out by means of a pion spectrometer in the exterior proton beam of the synchrocyclotron of the Laboratoriya yadernykh problem Ob"yedinennogo Instituta yadernykh issledovaniy (Laboratory for Nuclear Problems of the United Institute for Nuclear Research). A table shows the results of the measurement of the differential cross sections $d^2\sigma_+/d\Omega\ dE$ for various observation angles and the energy spectra of the positive pions are

Card 1/3

SOV/56-34-6-8/51

The Energy Spectra and the Angular Distribution of the Positive Pions
Produced by 660 MeV Protons on Carbon

demonstrated by some diagrams. An other table gives the cross sections $d\sigma_+/d\Omega$. The next part of this paper discusses the form of the spectra. The average energy of the positive pions in the system connected with the center of inertia practically does not depend on the departure angle and amounts to ~100 MeV. The cross section $d\sigma_+^*/d\Omega^*$

(in the system of the center of inertia) does not depend much on the angle in the interval 36 - 103°. An analogous result was also found for neutral pions (Ref 9). The above mentioned cross section may be estimated also by considerations basing on the principle of the isotopic invariance. The ratio $d\sigma_+/d\sigma_-$ depends only little on the angle and the yield of the negative mesons amounts only to 15 - 20 % of the positive meson yield. The last part of this paper compares the yields of the positive mesons produced on free and bound protons. The decrease (by 2 times) of the probability of the production of positive pions by p-p-collisions in a carbon nucleus with respect to the analogous probability for free p-p-collisions can be explained well by the absorption of protons in the nuclear matter,

Card 2/3

SOV/56-34-6-8/51

The Energy Spectra and the Angular Distribution of the Positive Pions Produced by 660 MeV Protons on Carbon

if the experimentally observed positive pions were produced on the nucleus surface. The authors thank Yu. D. Prokoshkin for the discussion of the results. There are 2 figures, 2 tables, and 15 references, 11 of which are Soviet.

SUBMITTED: January 13, 1958

Card 3/3

AUTHORS: Meshkovskiy, A. G., Shalamov, Ya. Ya., SOV/56-35-1-4/59
Shebanov, V. A.

TITLE: Energy Spectra and Angular Distribution of π^+-Mesons Produced in p-p Collisions at an Energy of 660 - 670 MeV (Energeticheskiye spektry i uglovoye raspredeleniye π^+-mezonov, obrazovannykh v p-p-soudareniyakh pri energiyakh 660 - 670 MeV)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol 35, Nr 1, pp 64 - 70 (USSR)

ABSTRACT: The authors give a report about investigations of p-p collisions at E_p = 670 MeV and compare their results with those obtained in earlier papers (Refs 1-7) by other Soviet authors. Sidorov (Ref 1) investigated p-p collisions at E_p = 660 MeV at 5 angles between 0 and 120°; Meshcheryakov et al. (Ref 2) investigated the π^+ spectrum at 24° by means of magnetic analysis; it was again Meshcheryakov et al. (Ref 3) who reported on the determination of the absolute π^+ yield at 24, 36, and 65° and the spectra at 29 and 46°; Neganov and Savchenko (Ref 4) investigated the energy spectrum of 4 angles between

Card 1/3

Energy Spectra and Angular Distribution of π+-Mesons SOV [illegible]
Produced in p-p Collisions at an Energy of [illegible] - [illegible] MeV

108 and 160° as well as the yield between [illegible] and [illegible]° etc. In the present paper observations are carried out at 19°30', 38° and 50°, and E_{π^+} as well as the differential cross section $d^2\sigma/d\Omega dE$ are measured (results in tables 1 and 2 and in figures 1 and 2, all in c.m.s.). It was found that in the c.m.s. the shape of the π+-spectrum for the p+p → p+n+π+ reaction depends on the angle of emission. For the angular distribution the formula

$$d\sigma^*/d\Omega^* = [(0,97 \pm 0,06)+(0,30 \pm 0,21)\cos^2\vartheta^*].10^{-27}\,cm^2\,steradian^{-1}$$

is obtained. The numerical results for the $\sigma\vartheta^*$ values between 35 and 101° at E_p = 660 MeV are given in table 3. For the total cross section

$$\sigma_{pp}^{\pi^+} = (14,4 \pm 1,2).10^{-27}cm^2$$

is obtained. Figure 3 shows π+-spectra at E_p = 660 MeV for 19°30', 29, 38,46 and 56°, which are compared with the result obtained by Meshcheryakov et al. (Ref 2) for 24°. In conclusion the authors thank V.P.Dzhelepov for the interest he displayed in this paper,

Card 2/3

Energy Spectra and Angular Distribution of π^+-Mesons Produced in p-p Collisions at an Energy of 660 - 760 MeV SOV/56-35-1-8/59

and I.Yu.Kobzarev for having discussed the experimental results. There are 3 figures, 3 tables, and 7 references, all of which are Soviet.

SUBMITTED: February 24, 1958

Card 3/3

24(5)

AUTHORS: Lomanov, M. F., Meshkovskiy, A. G., Shalamov, Ya. Ya., Shebanov, V. A., Grashin, A. F.

SOV/56-35-4-8/52

TITLE: Bremsstrahlung of π-Mesons in Interaction With Nuclei (Tormoznoye izlucheniye π-mezonov pri vzaimodeystvii s yadrami)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol 35, Nr 4, pp 887-893 (USSR)

ABSTRACT: Already in earlier papers the pion bremsstrahlung in the nuclear field of forces has been investigated theoretically by several authors (Refs 1-4, Landau, Pomeranchuk, Vdovin, Solov'yev). Solov'yev investigated pion bremsstrahlung at energies near the rest-energy of pions, and determined the bremsstrahlung cross section on the nucleon as being of the order of $10^{-28}cm^2$. For the pion bremsstrahlung on nuclear forces larger cross sections are obtained. In the present paper the authors report the discovery of a pion bremsstrahlung during the investigation of the interaction between positive pions and light nuclei in the energy range near rest energy. Experiments were carried out with the external π^+-meson beam of the synchrocyclotron

Card 1/3

of the Laboratoriya yadernykh problem Ob"yedinennogo instituta yadernykh issledovaniy (Laboratory for Nuclear Problems of the United Institute for Nuclear Research). The authors used a bubble chamber with a Freon mixture ($CClF_2$+$CClF_3$). The γ-quanta of the bremsstrahlung were observed by means of the conversion effect on electron-positron pairs. (In this connection compare also the papers worked out by the authors in cooperation with Blinov and Shchegolev)(Refs 5, 6). Energy- and cross section measurements are here carried out for pion nuclear force bremsstrahlung in the energy range of $80 < E_{\pi^+} < 300$ MeV on C-, F-, Cl-nuclei, and results are compared with theoretical results. For the inelastic pion scattering on nuclei (processes

$$\pi^+ + A \rightarrow \pi^+ + \gamma + A' \quad \text{and} \quad \pi^+ + A \rightarrow \pi^+ + \pi^0 + A'$$

where A and A' denote the initial- and final states of the nucleus respectively) and the same elastic processes, 20 cases of such a pion bremsstrahlung were found on 7000 plates (elastic + inelastic), and a cross section (on F-nuclei) of $(4.5 {+1.2 \atop -0.2}) \cdot 10^{-27} cm^2$ was determined. Among these 7000 pictures

Card 2/3

Bremsstrahlung of π-Mesons in Interaction With Nuclei SOV/56-35-4-8/52

3 cases of bremsstrahlung caused by π^+-absorption on the nucleus were ascribed to /($\pi + A \rightarrow \gamma + A'$, $\pi^+ + A \rightarrow \pi_0 + A'$) and in 2 cases the bremsstrahlung is ascribed to charge-exchange scattering of π^+-mesons on the nucleus ($\pi^+ + A \rightarrow \pi^0 + \pi^0 + A'$). Calculation of the cross sections was carried out in quasi-classical approximation, and good agreement with theoretical results was obtained. The authors thank I. Ya. Pomeranchuk for the interest he displayed in this work. There are 3 figures, 1 table, and 8 references, 6 of which are Soviet.

SUBMITTED: May 6, 1958

Card 3/3

21 (7)

AUTHORS: Krestnikov, Yu. S., Meshkovskiy, A. G., Shalamov, Ya. Ya., Shebanov, V. A., Kobzarev, I. Yu. SOV/56-37-3-52/62

TITLE: On the Decays $\mu \rightarrow e + \gamma$ and $\mu \rightarrow e + \nu + \bar{\nu} + \gamma$

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 37, Nr 3 (9), pp 873-875 (USSR)

ABSTRACT: From the hypothesis of the existence of an intermediate boson of great mass (universal A-V interaction) it follows that the decay $\mu \rightarrow e + \gamma$ is possible, which is forbidden according to A-V point interaction. Feynberg calculated the probability of this interaction and showed that the ratio $\varrho_1 = R(\mu \rightarrow e + \gamma)/R(\mu \rightarrow e + \nu + \bar{\nu})$ depends on the cut-off parameter Λ. If Λ is equal to the boson mass $\varrho_1 \approx 10^{-4}$, if $\Lambda < M$, it may become arbitrarily small. The authors of the present "Letter to the Editor" searched for the $\mu \rightarrow e + \gamma$ decays by means of a 17 liter freon bubble chamber. The chamber was located in the external π^+ beam of the synchrocyclotron of the OIYaI (Joint Institute of Nuclear Research). The 200 Mev π^+-mesons were slowed down by means of a graphite filter and were stopped in the chamber space. About 20000 stereophotographs

Card 1/3

On the Decays $\mu \to e + \gamma$ and $\mu \to e + \nu + \bar{\nu} + \gamma$ SOV/56-37-3-52/62

were obtained, which were twice evaluated. The evaluation lines are given. Of the three possible decays $\mu \to e + \nu + \bar{\nu} + \gamma$, $\pi \to \mu + \nu + \gamma$, and $\mu \to e + \gamma$ not a single one of the third kind was found among 91000 π-μ-e decays. ρ_1 was determined as amounting to $< 4.3\cdot10^{-5}$. In the evaluation of the plates reactions of the first kind were found with $(e,\gamma) < 180^{\circ}$; such a photo is shown by figure 1. Such a decay has hitherto not been observed. A table shows all cases in which $E_{\gamma} \gtrsim 15 - 20$ Mev and in which the angle $(e, \gamma) \gtrsim 50 - 60^{\circ}$. The table contains data concerning the (e, γ)-angle, E_e and E_{γ}, as well as the energy of the decay products Q. For processes of the first kind it was found that Q = 105.2 Mev, for those of the second kind - 33.9 Mev. Figure 2 shows investigation results in form of a diagram, where the number of recorded pairs is plotted versus the angle of rotation in the muon stopping point. The ratio of the reactions $\varrho_2 = R(\mu \to e + \nu + \bar{\nu} + \gamma)/R(\mu \to e + \nu + \bar{\nu})$ was determined as amounting to $\left(0.80 \begin{smallmatrix} +0.24 \\ -0.36 \end{smallmatrix}\right)\cdot10^{-3}$.

Card 2/3

Theoretically, $1.02\cdot10^{-3} < \varrho_2 < 1.80\cdot10^{-3}$ was obtained (for the A-V interaction). The authors finally thank Academician A. I. Alikhanov for his discussion and interest, M. F. Lomanov, Yu. I. Makarov, and V. I. Smetanina for their assistance, I. S. Bruk for making it possible to carry out computations on the electronic computer of the type M-2 of the Institut elektronnykh i upravlyayushchikh mashin AN SSSR (Institute for Electronic and Control Machines of the AS USSR), and R. A. Ioffe for carrying out these computations. There are 2 figures, 1 table, and 8 references, 1 of which is Soviet.

SUBMITTED: June 9, 1959

Card 3/3

MESHKOVSKIY, A.G.; SHALAMOV, Ya.Ya.

Nonelastic reactions of π^+-mesons with light nuclei with energies from 80 to 300 Mev. Zhur.eksp.i teor.fiz. 37 no.4:978-982 O '59. (MIRA 13:5)
(Mesons) (Nuclear reactions)

S/004/60/000/005/001/007
A166/A026

AUTHOR: Meshkovskiy, A., Doctor of Physico-Mathematical Sciences

TITLE: Mirror of the Microworld

PERIODICAL: Znaniye-Sila, 1960, No. 5, pp. 1 4

TEXT: The article describes the operation of a bubble chamber 19 and illustrates its use with the aid of two photos taken by the Soviet physicists Shalamov, Shebanov and Kuznetsov, working with the synchrophasotron at the Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute for Nuclear Research) at Dubna. The photos show the collisions of π-mesons gunned into the bubble chamber by the synchrophasotron and are accompanied by an explanation identifying the various tracks left by the microparticles resulting from collisions or from decay processes. A bubble-chamber was used at Dubna in the recent discovery of the antisygma-minus-hyperon. There are 4 photos, 1 table and 1 figure.

Card 1/1

20295
S/004/60/000/012/004/005
A166/A126

3,1800 (1041,1062,1175) G.

AUTHOR: Meshkovskiy, A., Doctor of Physico-Mathematical Sciences

TITLE: Mesons in the role of astronauts

PERIODICAL: Znaniye-sila, 35 no. 12, 1960, 30-32

TEXT: The article demonstrates practical proof of the theory of the relativity of time and its relation to motion. The method is based on the study of π-mesons. The life of arrested π-mesons was measured with the help of a scintillation counter, a multiplier and an oscillograph. Observations set the period of half-decay at 17 nanoseconds and the mean life of the π-meson at 25 nanoseconds. In 17 nanoseconds the π-meson should travel 5 meters. Two counters were set up, one at the start of a π-meson ray and the other at a distance of 5 meters along the ray. With the first counter recording 1,000 mesons per minute it was expected that the second counter would record only 500 (due to the period of half-decay). In fact the second counter recorded, not 500, but 840 mesons per minute, and only with the second counter at a distance of 20 meters from the first (i. e., a time span of 69 nanoseconds) did it record 500 mesons per minute. This "contradiction" in fact de-

Card 1/2

20295
S/004/60/000/012/004/005
A166/A126

Mesons in the role of astronauts

monstrates the law of the relation of time and motion. The period of half-decay of 17 nanoseconds was for motionless π-mesons while the half-decay period of 69 nanoseconds was for the π-mesons at their proper speed of 290,000 km/sec. As the protons enter the Earth's atmosphere, they collide with atoms and liberate π-mesons which rapidly decay into μ-mesons. These μ-mesons should, in theory, cover only 600 meters before decaying, but are in fact detected at the Earth's surface, an effect made possible by the retardation of time at high speeds. There is 1 Soviet reference.

Card 2/2

S/056/62/043/004/016/061
B102/B180

AUTHORS: Barmin, V. V., Krestnikov, Yu. S., Kuznetsov, Ye. V., Meshkovskiy, A. G., Nikitin, Yu. P., Shebanov, V. A.

TITLE: π^0 meson production in the nuclear Coulomb field

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 4(10), 1962, 1223 - 1230 .

TEXT: To study the mechanism of coherent interaction, in which momentum transfer is very low and nuclear excitation absent, $\pi^- + N_Z^A \rightarrow \pi^- + \pi^0 + N_Z^A$ reactions were examined. They can only occur via interaction with the nuclear Coulomb field, diffractive pion "dissociations" being strongly forbidden. Only one pion dissociation experiment is hitherto known (Baldassarre et al. Nuovo Cim. 21, 459, 1961). Using a 2-liter xenon bubble chamber and 2.8 Bev/c π^- mesons from the proton-synchrotron of the OIYaI about 10,000 stereophotographs were obtained, and a similar number with a freon chamber. 48 and 31 events of π^- scattering through 3-30° accompanied by two electron-positron pairs were found respectively. After kinematic ana-

Card 1/2

This same title presented at the Intl. Conf. on High Energy Physics
Geneva 4-11 July 1962

π^0 meson production ...

S/056/62/043/004/016/061
B102/B180

lysis, there remained [illegible] and 13 events which could be attributed to the $\pi^- + Xe \rightarrow \pi^- + \pi^0 + Xe$ reaction. This is $(3.7 \pm 1.3) \cdot 10^{-3}$ of the total number of inelastic interactions, the cross section of which was 12[illegible] mb, from this the pion dissociation cross section was found to be $\sigma_c =$ [illegible].4±1.6 mb. Recording efficiency was taken into account. There was a sharp peak at $\theta < 1$[illegible]' in the angular distribution of this reaction. For σ_{ph} the mean cross section of the photoprocess $\gamma + \pi^- \rightarrow \pi^- + \pi^0$, 0.6± [illegible] mb was obtained using the relation $\sigma_c =$ [illegible].5 $\bar{\sigma}_{ph}$. It holds for the energy range [illegible]$m^2 \leqslant w^2 \leqslant$ [illegible]m^2, where m is the pion mass and w the center-of-mass total energy of the pions produced in the photoprocess. There are 3 figures and 1 table.

ASSOCIATION: Institut teoreticheskoy i eksperimental'noy fiziki Akademii nauk SSSR (Institute of Theoretical and Experimental Physics of the Academy of Sciences USSR)

SUBMITTED: May 17, 1962

Card 2/2

S/056/62/043/004/061/061
B104/B186

AUTHORS: Barmin, V. V., Krestnikov, Yu. S., Kuznetsov, Ye. V., Meshkovskiy, A. G., Shebanov, V. A.

TITLE: Search for resonances of $K^0\bar{K}^0$ pair production reactions

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 4(10), 1962, 1564-1565

TEXT: $K^0\bar{K}^0$ pair production processes with 2.8 Bev/c π^--mesons in Freon and xenon bubble chambers had been studied by Ye. V. Kuznetsov and I. Ye. Timoshin (PTE, 4, 40, 1959) and G. A. Blinov et al. (PTE, 1, 35, 1958). In these studies 38 and 13 events respectively of $K^0\bar{K}^0$ pair production were observed. To find possible resonances in the $K^0\bar{K}^0$ system the distribution of the pairs detected over their effective masses was now constructed (Fig. a). The error in the masses is approximately ±25 Mev. The broken lines indicate the boundary values of the $m(K^0\bar{K}^0)$. The distribution has a peak at $m(K^0\bar{K}^0) = 1275$ Mev but the statistical reliability of this is very low. It was shown that the hypothesis of the decay of a σ_0-meson according to the scheme $\sigma_0 \longrightarrow K^0 + \bar{K}^0 + \pi^0$ could be completely

Card 1/2 This same report presented at the Intl Conf on High Energy Physics Geneva 4-11 July 1962

Search for resonances of ...

S/056/62/043/004/061/061
B104/B186

refuted. A total of nine events was detected in which two K^0-mesons departed without any charged particle or quantum. These events can be interpreted according to the reaction $\pi^- + p \rightarrow K^0 + \bar{K}^0 + n$. In this case the effective mass of $\bar{K}^0 + n$ can be determined from the momentum and angle of departure of the K^0-meson (Fig. b). The peak at 1715 Mev has little statistical reliability so the resonances can only be supposed. There is 1 figure.

√

ASSOCIATION: Institut teoreticheskoy i eksperimental'noy fiziki (Institute of Theoretical and Experimental Physics)

SUBMITTED: July 17, 1962

Card 2/~~3~~2

AID Nr. 988-5 12 June MESHKOUSKIY, AG.

200-LITER BUBBLE CHAMBER (USSR)

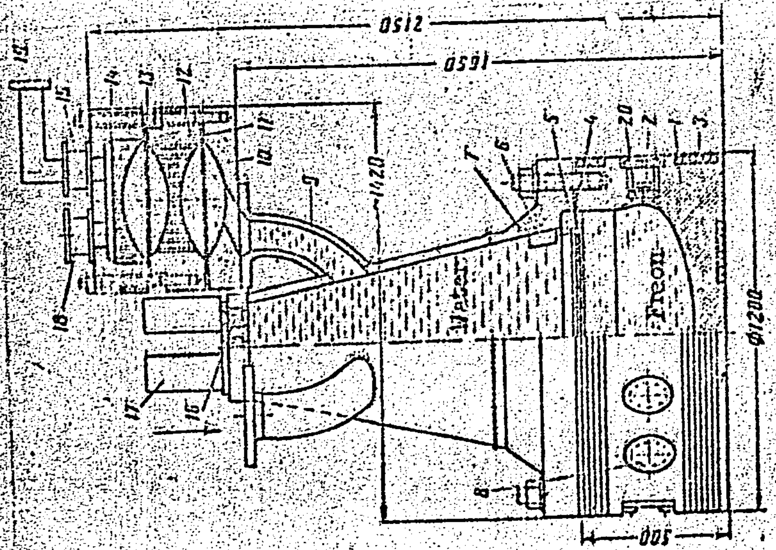
Lomanov, M. F., A. G. Meshkovskiy, M. S. Khropov, and V. A. Shchegolev.
Pribory i tekhnika eksperimenta, no. 2, Mar-Apr 1963, 37-40.
S/120/63/000/002/007/041

The Institute of Theoretical and Experimental Physics has developed a
freon bubble chamber which can be used for the observation of particle
stopping within 80 cm. The chamber operates at 30 atm and 25.6°C and
uses a mixture consisting of freon-12 (CCl_2F_2) and freon-13 ($CClF_3$) in
a two-to-three ratio by weight. The duralumin chamber [see illustration],
which has a 900-mm inside diameter, is provided with an organic glass
(CT-1) window (5) sealed with flexible rubber (4), permitting the
window to move vertically 30 mm. The conical outer container (7) is
filled with water and connected by pipe (9) to the expansion mechanism.
The chamber is illuminated by nine ИФК -12 flash-tubes (20). Two
cameras (17) with focal lengths of 55 mm are placed at the top of the
container. Coil pipe (3) is connected to the TC -24 thermostat and
maintains a chamber temperature constant within ± 0.1°C. The chamber
sensitivity time is greater than 40 msec, the full cycle of operation
is 13 sec, and expansion and compression times are 15 to 20 msec.
In tests the chamber withstood some 104 test expansions, and 2500
test photos were obtained. [WP]

Card 1/2

AID Nr. 988-5 12 June

200-LITER BUBBLE CHAMBER [Cont'd] S/120/63/000/002/007/041



Card 2/2

S/056/63/044/002/052/065
B184/B102

AUTHORS: Barmin, V. V., Krestnikov, Yu. S., Kuznetsov, [illegible], Meshkovskiy, A. G., Nikitin, Yu. P., Shebanov, V. [illegible]

TITLE: New data on π^0 meson production in the nuclear Coulomb field

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 44, no. 2, 1963, 748 - 749

TEXT: The present article is a continuation of experimental studies (ZhETF, 43, 1223, 1962) on the reaction $\pi^- + Xe \longrightarrow \pi^- + \pi^0 + Xe$, observed in a xenon bubble chamber bombarded by pions of 2.8 Bev/c. [illegible] events had been found on scanning about 10,000 stereophotographs. On another 15,000 stereophotographs were scanned four times and 53 π^0 production events were found. Since $d\sigma/d\Omega = f(\theta)$ tends to zero with $\theta \longrightarrow 30^o$, the reaction cross-section was determined from the values obtained for $3^o \leqslant \theta \leqslant 30^o$, the $\sigma_c = 2.65 \pm 0.90$ mb was obtained; θ is the angle of π^- emission. The inelastic scattering cross-section was taken as 1200 mb. From this result also the cross-section $\overline{\sigma}_p$ of the reaction $\gamma + \pi^- \longrightarrow \pi^- + \pi^0$ was estimated; assuming $\sigma_c/\overline{\sigma}_p = 7.5$, a value of 0.35 ± 0.12 mb was obtained for $\overline{\sigma}_p$. There are
Card 1/2

S/056/63/044/002/052/065
B184/B102

New data on π^0 meson production...

1 figure and 1 table.

ASSOCIATION: Institut teoreticheskoy i eksperimental'noy fiziki Akademii nauk SSSR (Institute of Theoretical and Experimental Physics of the Academy of Sciences USSR)

SUBMITTED: November 2, 1962

Card 2/2

BARMIN, V.V.; DOLGOLENKO, A.G.; KRESTNIKOV, Yu.S.; MESHKOVSKIY, A.G.;
NIKITIN, Yu.P.; SHEBANOV, V.A.

Evidence of $\omega \to \pi^0 + \gamma$ decay. Zhur. eksp. i teor. fiz. 45
no.6:1879-1890 D '63. (MIRA 17:2)

1. Institut teoreticheskoy i eksperimental'noy fiziki.

BARMIN, V.V.; DOLGOLENKO, A.G.; KRESTNIKOV, Yu.S.; MESHKOVSKIY, A.G.;
SHEBANOV, V.A.

Searching for $\omega \to e^+ + e^-$ decay. Zhur. eksp. i teor. fiz.
45 no.6:2082-2084 D '63. (MIRA 17:2)

1. Institut teoreticheskoy i eksperimental'noy fiziki.

BARMIN, V.V.; DOLGOLENKO, A.G.; KRESTNIKOV, Yu.S.; MESHKOVSKIY, A.G.;
SHEBANOV, V.A.

Study of the exchange scattering $\pi^- + p \to n + \pi^0$ and the reaction $\pi^- + p \to n + \eta$ ($\eta \to 2\gamma$) in the momentum range 1.55--4.5 Bev./c. Zhur. eksper. i teor. fiz. 46 no.1:142-147 Ja '64. (MIRA 17:2)

1. Institut teoreticheskoy i eksperimental'noy fiziki.

L 01319-67 EWT(1)

ACC NR: AT6031149 SOURCE CODE: UR/3138/65/000/401/0005/0016 28

27
BH

AUTHOR: Barmin, V. V.; Dolgolenko, A. G.; Meshkovskiy, A. G.; Shebanov, V. A.

ORG: none

21

TITLE: Analysis of exchange scattering with momentum $\pi^- + p \to \pi^0 + n$ at 2.8 Bev/c

SOURCE: USSR. Gosudarstvennyy komitet po ispol'zovaniyu atomnoy energii. Institut teoreticheskoy i eksperimental'noy fiziki. Doklady, no. 401, 1965. Issledovaniye obmennogo reaseyaniya otritsatel'nogo piona s protonom v rezul'tate kotorogo poluchayetsya neytral'niy pion i neytron pri impul'se 2,8 Gev/c, 5-16

TOPIC TAGS: exchange scattering, pi meson, proton, pion, pion proton interaction

ABSTRACT: An analysis is made of the $\pi^- + p \to \pi^0 + n$ reaction at $P_{\pi^-} = 2.8$ Bev/c. The total cross section for this reaction is $\sigma = 0.35 \pm 0.04$ mb. The angular distribution $d\sigma/d\Omega$ has two maxima: one close to 0° and the other within the interval $0.3 < \cos\theta < 0.45$. This corresponds to the square of the transmitted momentum $t \approx -1.4\ (\text{Bev/c})^2$. The values of $d\sigma/d\Omega$ at 0° and 180° are

Card 1/2

L 01319-67

3

ACC NR: AT60~~2~~1149

220 ± 30 $\mu b/sr$ and 5 ± 5 $\mu b/sr$, respectively. The authors thank K. A. Ter-Martirosyan for his discussion of this work. Orig. art. has: 2 tables and 2 figures. [SP] [Authors' abstract]

SUB CODE: 20/ SUBM DATE: 01Dec65/ ORIG REF: 008/ OTH REF: 007/

Card 2/2

MESHKOVSKIY, A.V.

Eliminate shortcomings in training drivers. Za rul. 14 no.9:3
D '56. (MIRA 10:3)

1. Nachal'nik avtomotootdela TSentral'nogo komiteta Dobrovol'nogo obshchestva sodeystviya armii, aviatsii i flotu.
(Automobile drivers)

MESHKOVSKIY, Aleksandr Vasil'yevich; YEFREMOVA, Ye.V., red.; FAYNSHMIDT, F.Ya., tekhn. red.

[How to build a very simple course for automobile training and sports] Kak postroit' prosteishii uchebno-sportivnyi avtomotodrom. Moskva, Izd-vo DOSAAF, 1960. 87 p. (MIRA 14:9)
(Automobile drivers) (Automobile racing)

MESHKOVSKIY, G.A., inzh.; POKHODZILO, V.N., inzh.

Creating new machinery for coal and metal mining. Met.i gornorud. prom. no.5:87 S-O '62. (MIRA 16:1)
(Mining machinery)

MESHKOVSKIY, G.A., inzh.

Rock breaking by electricity (from "Mining World," February 1962). Met.i gornorud.prom. no.5:94-95 S-O '62. (MIRA 16:1)
(United States—Electricity in mining)

TIMOFEYEV, V.A., inzh.; MESHKOVSKIY, G.A., inzh.; POKHODZILO, V.N., inzh.

Technical and economic analysis of ore haulage in Krivoy Rog Basin mines. Met. i gornorud. prom. no.6:40-44 N-D '62. (MIRA 17:8)

1. Nauchno-issledovatel'skiy gornorudnyy institut, Krivoy Rog (for Timofeyev).

MESHKOVSKIY, G. A., inzh.; POKHODZILO, V. M., inzh.

Joint session of the Department of Technical Sciences of the
Academies of Science of the U.S.S.R. and the Ukrainian S.S.R.
Met. i gornorud. prom. no.1:78-80 Ja-F '63. (MIRA 16:4)

(Mining engineering—Congresses)
(Metallurgy—Congresses)

MESHKOVSKIY, G.A., inzh.

Modeling the drawing of ore from blocks with sloping walls.
Met. i gornorud. prom. no.5:68-71 S-O '63. (MIRA 16:11)

KANDYBA, M.I., kand. tekhn. nauk; MESHKOVSKIY, G.A., inzh.

Behavior of rocks under prolonged action of an applied load.
Izv. vys. ucheb. zav.; gor. zhur. 7 no.3:15-23 '64
(MIRA 17:8)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut ugol'noy, rudnoy, neftyanoy i gazovoy promyshlennosti UkrSSR. Rekomendovana laboratoriyey tekhnologii i burovzryvnykh rabot.

[illegible]

[illegible]

AUTHOR: MESHKOVSKIY, K.A.

TITLE: A-U Sci Conf dedicated to "Radio Day," Moscow, 20-25 May 1957.
"Problems of Noiseproofing of Communication Systems which
Receive a Whole Signal,"

PERIODICAL: Radiotekhnika i Elektronika, Vol. 2, No.9, pp. 1221-1224,
1957, (USSR)

For abstract see L.G. Stolyarov

MESHKOVSKIY, K A.

INFORMATION THEORY

"Noise Rejecting Codes", by K.A. Meshkovskiy, Ekektrosvyaz', No 8, August 1957, pp 3-12.

Based on the theory of the maximum possible noise rejection and on the geometrical theory of coding, the author explains the fundamental principles of the compilation of noise-rejecting codes. A geometric interpretation is given for the concept of optimum code. A very convenient criterion is proposed for comparison of codes, and extensive groups of noise-rejecting codes are given.

Card 1/1

Meshkovskiy, K.A

MESHKOVSKIY, K.A.

Interference-resistant codes. Elektrosviaz' 11 no.8:3-12 Ag '57.
(Telecommunication) (MIRA 10:12)

MESHKOVSKIY, K. A.: Master Tech Sci (diss) -- "Investigation in the theory of coding". Moscow, 1958, published by the Acad Sci USSR. 14 pp (Acad Sci USSR, Inst of Radio Engineering and Electronics), 150 copies (KL, No 5, 1959, 150)

MESHKOVSKIY, K. A.

K. A. MESHKOVSKIY, "On a class of optimum codes." Scientific Session Devoted to "Radio Day", May 1958, Trudrezervizdat, Moscow, 9 Sep. 58

A class of optimum codes has been constructed on the basis of the principles of constructing interference-immune codes; its peculiarities are shown.

It is shown that codes of this class approximate the ideal Shannon code most closely in comparison with codes known at the present time.

The advantage of codes of this class as well as of a more general class, being investigated abroad, in comparison with codes of a class known earlier is illustrated in a graphical manner.

SOV/106-58-5-2/[illegible]

AUTHOR: Meshkovskiy, K.A.

TITLE: Optimal and near-optimal Binary Codes (Optimal'nyye i blizkiye k nim dvoichnyye kody)

PERIODICAL: Elektrosvyaz', 1958, Nr 5, pp 5 - 15 (USSR)

ABSTRACT. There has been much work on binary codes but with few exceptions it has employed the apparatus of Boolean algebra. This has lessened the relationships between previous contributions since for example, the analysis of non-systematic codes cannot be undertaken by this means. The present contribution uses a geometrical approach and representation in n-dimensional space. Some use is made of results obtained by Hamming (Bell Sys. Tech.L. 1950, Vol 29, Nr 2). The [illegible] of arbitrary order is defined and the properties of sub-groups of unequal order examined. Two properties are deduced: 1) coded combinations within a sub-group can only be distinguished in even numbers of units when the minimum internal metric is 2; 2) coded combinations of any 2 sub-groups of orders k and r can only be distinguished in an even number of units if k and r are both even (or both odd) and only in an odd number of units if k and r are of unequal parity when the minimum external metric is [illegible]. The parameters of four important optimal simplex [illegible]

Card 1/2

Optimal and Near-optimal Binary Codes SOV/108-58-5-2/13

derived and the relation calculated between the minimum metrics of a simplex and a double-simplex code. Table 1 shows examples of codes constructed from the relations (11 - 14) for the essential parameters and various particular values of k. Table 2 gives the maximum number of coded combinations for various dimensions and minimum metric. Table 3a is an example of a [illegible]-value code with 8 possible signals and capable of correcting single errors. Corresponding member of the Ac.Sc. Ukrainian SSR, A.A. Kharkevich and Prof. E.L. Blokh are thanked for their advice. There are 3 tables and 10 references, 2 of which are Soviet and 8 English.

SUBMITTED: February 1[illegible], 1957

Card 2/2

SOV/106-58-12-1/13

AUTHOR: Meshkovskiy, K.A.

TITLE: Analysis of One Method of Reception of Binary Signals (Analiz odnoy skhemy priyema dvoichnykh signalov)

PERIODICAL: Elektrosvyaz', 1958, Nr 12, pp 3 - 9 (USSR)

ABSTRACT: Attempts to find an ideal binary code which will ensure a rate of transmission of information equal to the capacity of a channel for an arbitrary low error frequency have not been fully successful. In the opinion of the author this lack of success is due to incomplete use of the possibilities of improving the interference stability by improving the receiving apparatus. The object of the article is to analyse these causes and to give a more accurate concept of the ideal receiver for signals consisting of 'n' simple signals. The work is limited to binary codes and the action of normal fluctuation interference. The terms "simple signal" and "complex signal" are used instead of the term "symbol" and "code combination" as used in Ref 2. At the receiving end of the communication link is a receiving apparatus which recognises, depending on the degree of distortion of the

Card 1/3

SOV/106-58-12-1/13

Analysis of One Method of Reception of Binary Signals

simple signal, one of the initial messages. In parti-
cular, this apparatus can be an ideal receiver for
reception of simple signals followed by recognition
(correction) apparatus. This type of receiver is called
Type A. It is shown that a Type A receiver is not an
ideal receiver for complex signals. An ideal, complex-
signal receiver is called Type B. It is concluded that
in the general case the interference-stability of a
Type A receiver is lower than for a Type B receiver. In
system A, codes having an odd Hamming distance ensure
higher interference stability than codes with an even
Hamming distance. Communication systems of the Type A
possess one or both of the following defects: (1) If
the optimum code is used, then the receiver is not ideal.
(2) If the receiver is ideal, then this is possible only
with a specially selected code, in which the minimum
distance between the code combinations must be uneven,
i.e. the code used will not be the optimum.

Card 2/3

SOV/106-58-12-1/13

Analysis of One Method of Reception of Binary Signals

Thus, Type A reception can never give the full potential interference stability as regards both the code and the method. Corresponding Member of the Ac. Sc. Ukr. SSR, A.A. Kharkevich, advised in this work.
There are 4 figures and 6 references, 4 of which are Soviet and 2 English.

SUBMITTED: December 14, 1957

Card 3/3

8-3-6 1/

AUTHOR: Meshkovskiy, K.A.,

TITLE: Problems Concerning the Immunity From Noise in Communication Systems Realizing Signal Reception "As a Whole" (Voprosy pomekhoustoychivosti sistem svyazi, osushchestvlyayushchikh priyëm signala v "tselom")

PERIODICAL: Radiotekhnika, 1958, Vol 13, Nr 6, pp 3-17 (USSR)

ABSTRACT: Some results obtained when investigating immunity from noise are mentioned and a new system having higher indices than those hitherto in use is recommended. In investigations of all problems the geometric conceptions of signals and communication systems found in the works by V.A.Kotel'nikov (Ref 1) and C.E.Shannon (Ref 2) were used. Such communication systems are investigated here in which the received signal is identified with one that is possible and was transmitted as a whole only after the signal reached the receiver. Several new results obtained (Refs 3 and 4) are used. All signals are assumed to have the same probability and that their total number is N. The geometrical image of the disturbance occurring in the connecting channel is a random vector. The influence of the disturbance in form of the "white noise"

Card 1/4

108-13-6-1/1

Problems Concerning the Immunity From Noise in Communication Systems Realizing Signal Reception "As a Whole"

which is expressed by the law of normal distribution, is investigated. This law is the most frequent and the most harmful. The probability that one of the signals may reach its domain under the influence of the disturbance is determined and thus also the probability of a correct reception of $P_{correct\ reception}$ of the signal. If the $P_{correct\ reception}$ of all signals are equal this probability, in view of the fact that the signals have the same probability, will also characterize immunity from disturbances. This determination of the probability of correct reception is carried out for a number of optimal and not optimal codes. In the first part 1.) immunity from noise in the case of an established connection by means of signals of the orthogonal code and a perfect reception 2.) in the case of the establishment of connection by means of the optimal orthogonal code and perfect reception and 3.) in the case of the establishment of connection by signals of the optimal simplex codes and of perfect reception are dealt with. Part 2 deals with immunity from disturbance in the case of transmission by means of signals of the systematic code and by means of a detector of maximal probability also in the case of transmission by means of signals of the optimal dual code and

Card 2/4